

Quantitative Emboli Detection Using Nonlinear Ultrasound Technique, Phase I

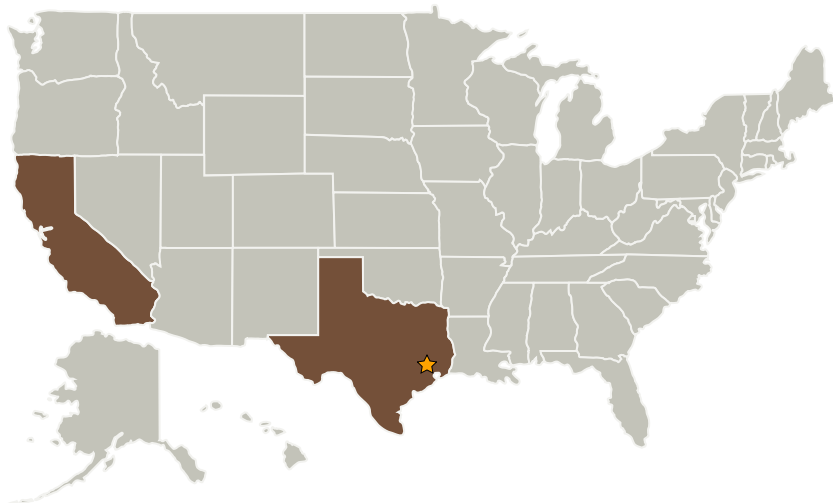
Completed Technology Project (2004 - 2004)



Project Introduction

We propose to develop a new and innovative method for the detection and classification of emboli flowing into the brain through Carotid arteries, specifically for situations involving space traveling. The present technique does not utilize Doppler technique, rather the advanced pulse-echo ultrasound technique based on detecting the nonlinear parametric scattered ultrasound pulse-echo wave from emboli. The proposed technique is predicted to have a resolution more than 10 times better than that of the Doppler technique, and to be able to exactly measure the size of and classify the type of emboli. Furthermore, the implementation of the proposed technique into a Holter-monitor type device is predicted to be much easier than the Doppler technique. This Phase I study propose to investigate the feasibility of the proposed technique in vitro.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Bae Institute	Supporting Organization	Industry	Tustin, California



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

California

Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Young Bae

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
 - └ TX05.1 Optical Communications
 - └ TX05.1.6 Optimetrics